

Plastic Surgery Patients Are Malnourished: Utilizing the Canadian Malnutrition Screening Tool

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Sir:

Proper nutrition promotes growth, supports organ function, and is vital to healing. Conversely, malnutrition is generally predictive of medical and surgical complications¹ such that the 30-day mortality rates of malnourished patients are more than 6 times those of patients with good nutritional status.² With specific relevance to a plastic surgery population, malnutrition is associated with chronic, nonhealing wounds because of a prolonged inflammatory phase, decreased proliferation of fibroblasts and formation of collagen, and a reduction in angiogenesis.³ The role of nutrition in the treatment of burn injuries is recognized, and aggressive nutritional support after burn injury is now recommended.⁴ However, despite the fact that up to 45% of adults are malnourished upon admission to Canadian hospitals,² plastic surgery patients are not routinely assessed for nutritional status. In our opinion, the early detection of malnourishment via routine screening could significantly improve the treatment of this population.

The Canadian Nutritional Screening Tool (CNST) is a novel tool designed by the Canadian Malnutrition Task Force for hospital use. It is simple (2 questions taking <5 minutes), shows good sensitivity and specificity, and accurately predicts adverse outcomes when validated against the Subjective Global Assessment gold standard.⁵ The CNST consists of 2 questions: (1) have you lost weight in the past 6 months without trying to? (2) Have you been eating less than usual for a week², where 2 “yes” answers indicate nutritional risk. A total evaluable sample of 500 subjects were recruited into the study (522 subjects eligible) from the population routinely seen by the plastic surgeons at an academic institution with Research Ethics Board approval. Our study population was approximately 51% men, with an average age of 50.3±0.8 years. Demographics were not significantly different between patients presenting with a wound (17.8% of the study popu-

lation, n = 89) versus a surgical consultation (82.2% of the study population, n = 411). The average body mass index for all study subjects was 25.9 (52.0% of subjects were normal and 47.2% were overweight or obese according to Health Canada 2011 guidelines⁵). Smokers comprised 13.8% of the study population (17.9% of wound population versus 12.9% of the surgical population), and 20.2% of the wound population had diabetes ($P < 0.05$), compared with 6.8% of the surgical population.

Consistent with general in-patient Canadian hospital population,⁵ 25% of all study subjects were found to be at nutritional risk by the CNST. Of the patients with a wound diagnosis, 52.8% were found to be at nutritional risk. In contrast, 19% of subjects with a surgery-related concern were found to be at risk by the CNST. This study strongly suggests that 1:4 plastic surgery patients are malnourished. There was insufficient data granularity to further elucidate the nature of the nutritional risk, the type of plastic surgery consult, and the impact of nutrition on postoperative complications. This study has formed the basis for a larger prospective study to determine how malnutrition impacts the rates of complications and if nutritional interventions could optimize patients before surgery.

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DISCLOSURE

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REFERENCES

- Schiesser M, Kirchhoff P, Müller MK, et al. The correlation of nutrition risk index, nutrition risk score, and bioimpedance analysis with postoperative complications in patients undergoing gastrointestinal surgery. *Surgery* 2009;145:519–526.
- Allard JP, Keller H, Jeejeebhoy KN, et al. Malnutrition at hospital admission-contributors and effect on length of stay: a prospective cohort study from the Canadian Malnutrition Task Force. *JPEN J Parenter Enteral Nutr.* 2016;40:487–497.
- Litchford MD, Dörner B, Posthauer ME. Malnutrition as a precursor of pressure ulcers. *Adv Wound Care (New Rochelle).* 2014;3:54–63.
- Rodriguez NA, Jeschke MG, Williams FN, et al. Nutrition in burns: Galveston contributions. *JPEN J Parenter Enteral Nutr.* 2011;35:704–714.
- Laporte M, Keller HH, Payette H, et al. Validity and reliability of the new Canadian Nutrition Screening Tool in the ‘real-world’ hospital setting. *Eur J Clin Nutr.* 2015;69:558–564.

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